

Upper Clark Fork River Basin Restoration Grant Application

Short Form
(\$25,000 or less)

Submitted by:

State of Montana
Department of Natural Resources and Conservation
Water Resources Division

April 2006

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Applicant Information and Project Summary Form

1. Name of Applicant(s): State of Montana, Department of Natural Recourses and Conservation

2. Project Title: Flint Creek near Drummond Stream Gauge

3. Type of Entity* State Agency

(city, corporation, private individual, association, etc.)

(*Corporation and Foundation applicants are required to submit corporation information as follows: Articles of Incorporation, and Certificate of Good Standing. Partnership applicants are required to submit a Partnership Agreement and a list of the names of the Partners. Limited Liability Company applicants are required to submit Articles of Organization, a list of the members/managers, and Certificate of Good Standing. Associations are required to submit a list of members, Articles of Incorporation and Certificate of Organization. Please attach these documents to this form.)

4. Description of Project Location (Attach map showing location.): The USGS stream gauge would be reinstalled in its former location in the NE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 18, T10N, R12W, Granite County, 2.0 miles upstream of the mouth. A location map is included on page 6 of this application.

5. Injured Natural Resource(s) and/or Impaired Services to be Restored, Rehabilitated, Replaced or Equivalent Acquired through Project: The project provides for the reinstallation and operation of the Flint Creek near Drummond USGS Stream Gauge to provide continued streamflow monitoring and data collection and ultimately these data will be used for planning and monitoring future restoration projects.

6. Authorized Representative: Jack Stults Water Resources Div. Admin.
(Name) (Title)

Mailing Address: PO Box 201601
(Street/PO Box)
Helena MT 59620-1601 406-444-6605

(City/State/Zip) (Telephone)

Contact Person*: Larry Dolan Hydrologist
(Name) (Title)

Mailing Address*: PO Box 201601
(Street/PO Box)
Helena MT 59620-1601
(City/State/Zip)

Phone 406-444-6627

E-mail Address: ldolan@mt.gov

(*For Corporate, Partnership, L.L.C., or Cooperative Association applicants, list Registered Agent and Office for Service of Process)

7. Proposed Funding Sources

On the table below, enter the source and amount of all funding that may be used for this project. Indicate all potential sources of funds that you intend to apply for this project, even if you have not yet applied for the funds or have not yet received a commitment from the source. Indicate whether matching funds are cash or in-kind.

Funding Source		Amount in (\$) Dollars					Matching Fund Percentage (Funding Source Total/Project Total)
		Committed Funds			Uncommitted Funds	Total	
		Grants	Non-Grant Funds				
			Cash	In-kind			
A.	UCFRB Restoration Fund	\$ 7,000.00				\$ 7,000.00	50.00%
B.	USGS Cooperative			\$ 7,000.00		\$ 7,000.00	50.00%
C.							
D.							
E.							
F.							
G.							
H.							
I.							
Non-NRDP Totals		\$ 7,000.00		\$ 7,000.00		\$ 7,000.00	50.00%

8. Estimated Total Project Cost \$14,000.00
(Automatically Calculated from spreadsheet above)

9. Private (non-Governmental) Grant Applicant Financial Information

Not Applicable

- Are there any lawsuits, judgments, or obligations pending for or against you?
- Have you ever declared bankruptcy?
- Are any of your tax returns delinquent or under dispute?
- Any unpaid deficiencies?
- Are you a party to a lawsuit?
- Do you have any other contingent liabilities?
- Do your current and deferred liabilities exceed the value of your assets?

Explain all **YES** answers in a statement attached to this form.

10. Certification for Individuals or Private Entities

Not Applicable

Individuals or private entities requesting grant funds must sign the following certification.

Certification for Individuals or Private Entities

I (We) the undersigned, have provided this financial information as part of my (our) application for a grant from the UCFRB Restoration Fund. I (We) certify that the statement is complete and accurate to the best of my (our) knowledge and I (we) authorize the State of Montana to investigate my credit worthiness and any of the matters described above.

Individual(s)

_____	_____	_____	
Name	Social Security No.	Signature	Date
_____	_____	_____	
Name	Social Security No.	Signature	Date

Social Security Numbers will be kept confidential.

Private Entities

_____	_____	_____	
Name of Authorizing Agent	Federal Tax ID No.	Signature	Date

11. Authorizing Statement

An authorized agent/agents representing the applicant must by his/her signature indicate that the application for funds and expenditure of matching funds, as represented, is officially authorized.

Grant Authorization

I hereby declare that the information included in and all attachments to this application are true, complete, and accurate to the best of my knowledge, and that the proposed project complies with all applicable state, local, and federal laws and regulations.

I further declare that, for _____(Project Sponsor), I am legally authorized to enter into a binding contract with the State of Montana to obtain funding if this application is approved. I understand that the Governor must authorize funding for this project.

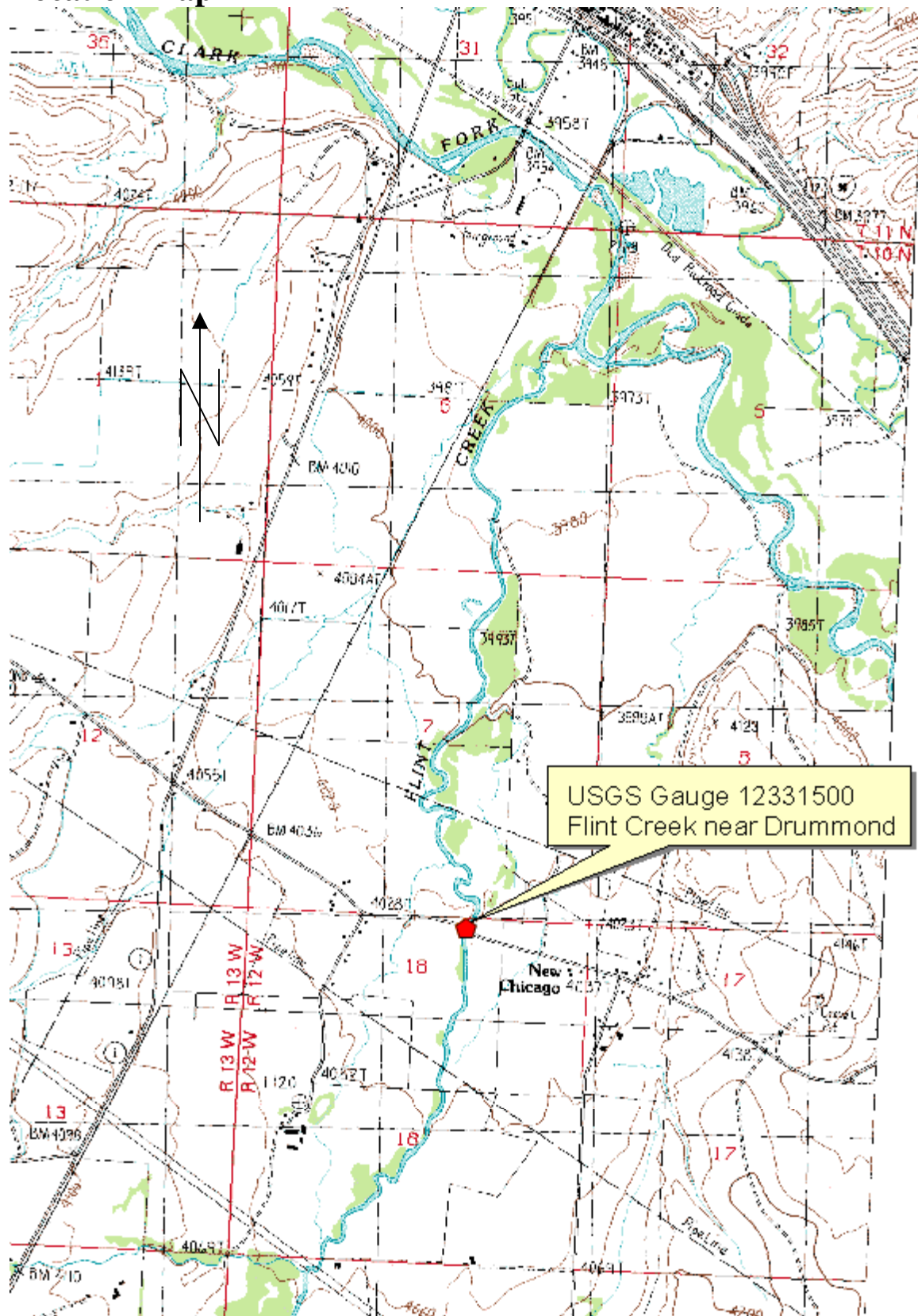
Project Sponsor

Date

Authorized Representative (signature)

Title

Location Map



Proposal Abstract

Applicant Name:

State of Montana, Department of Natural Resources and Conservation

Project Title: Flint Creek near Drummond Stream Gauge**Project Description and Benefits to Restoration:**

This project would provide the Montana Department of Natural Resources and Conservation (DNRC) matching funds to reactivate a stream flow gauge on Flint Creek near Drummond through the USGS Cooperative Water Program. The gauge would be reactivated in October 2006 to collect continuous streamflow data for the 2007 water year (October 2006 – September 2007). DNRC is requesting Legislative funding for matching funds to continue operations of the gauge beyond the 2007 water year. This project would provide \$7000 to be matched with a \$7000 in-kind contribution from USGS to reinstate the gauge and monitor flows throughout the 2007 water year until permanent funding for continued operation of the gauge can be secured by DNRC. USGS collected streamflow data for this location from August 1990 through April 2003 and August 2003 through February 2005. Water quality data was collected beginning as early as 1972 and continued both intermittently and regularly through August 2004. Flow monitoring at this site is important in continuing to build a reliable and comprehensive hydrologic record in the Upper Clark Fork River Basin (UCFRB) that would be used in planning for and monitoring restoration projects in the basin and in other uses benefiting the public.

Future restoration efforts in the UCFRB are dependent on understanding the hydrology of the basin. Flint Creek contributes approximately 17% of the flow in the Clark Fork River in the Drummond area. While Flint Creek does contribute metals including arsenic, copper and zinc, the concentrations of copper and zinc are generally lower than the concentrations found in the Clark Fork near Drummond. Therefore, Flint Creek provides for dilution of copper and zinc concentrations in the Clark Fork. However, flows in Flint Creek are highly regulated and variable due to reservoir releases and irrigation withdrawals. A better understanding of Flint Creek's contribution to the Clark Fork River downstream of Flint Creek is needed to determine its impact on metal concentrations in the Clark Fork River. This understanding will provide a more complete baseline for evaluating future restoration projects in the Flint Creek watershed that might provide benefits such as increased flows benefiting the fishery resource both in Flint Creek and the Clark Fork River.

Tributaries to the Clark Fork River such as Flint Creek are important to spawning and recruitment. The value of Flint Creek in recruitment of fish to the Clark Fork River is limited by dewatering. However, this dewatered situation provides the opportunity for restoration projects on Flint Creek benefiting both Flint Creek and the Clark Fork River fisheries. A more complete understanding of the hydrology of Flint Creek would be important in evaluating the feasibility of future restoration projects.

Technical Narrative

Applicant Name:

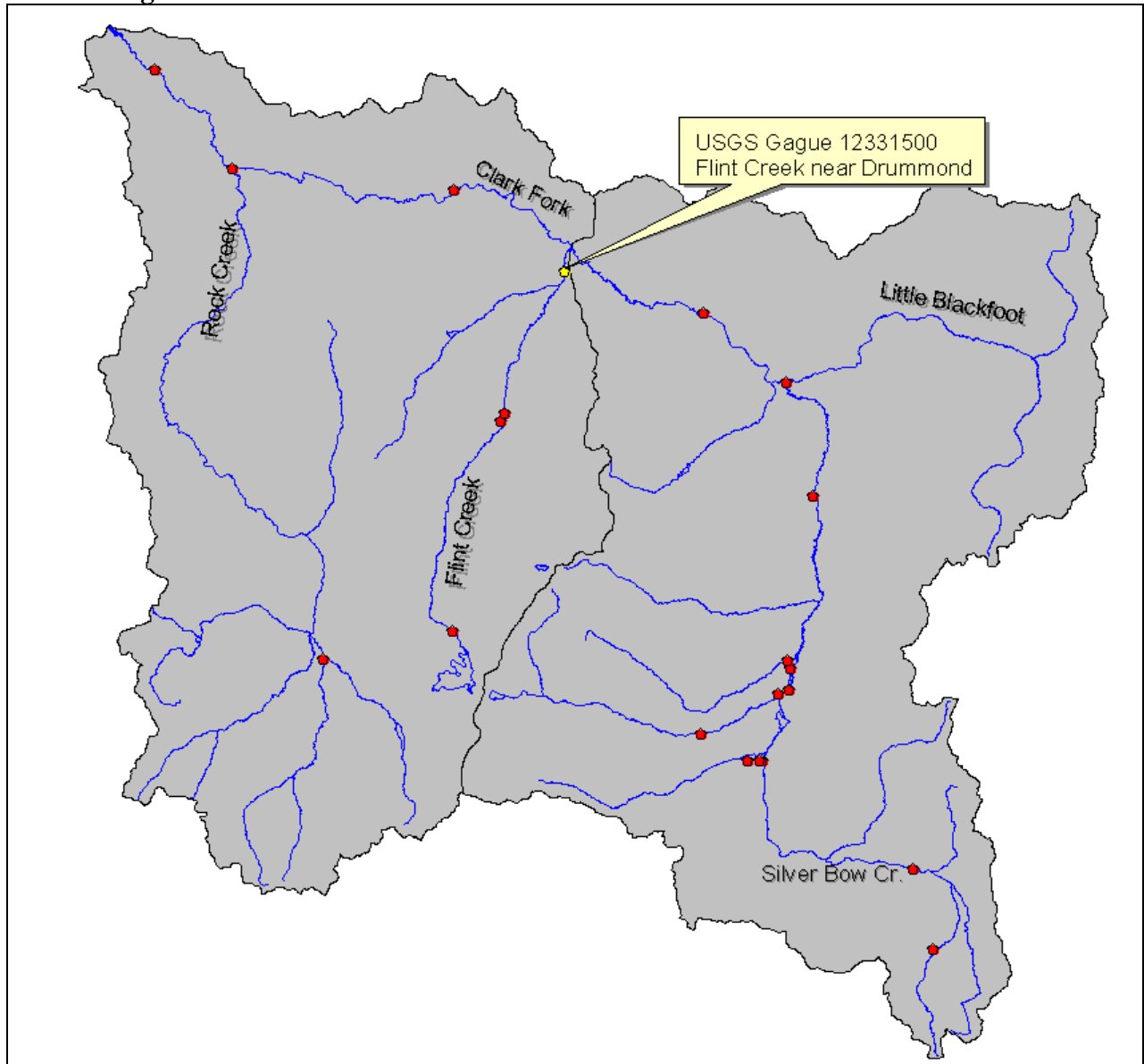
State of Montana, Department of Natural Resources and Conservation

Project Title: Flint Creek near Drummond Stream Gauge

Project Need

Flint Creek is the only major tributary to the upper Clark Fork River that is currently not gauged or measured at or near its mouth. The following map shows the location of the other USGS stream gauges in the Upper Clark Fork River Basin, not including the Blackfoot River Basin.

USGS Gauges in the UCFRB



The lack of flow data for Flint Creek at its mouth creates a data gap in understanding the overall hydrology in the UCFRB. A relatively continuous and comprehensive hydrologic record is essential in future restoration projects within the UCFRB. Flint Creek near Drummond is a significant tributary of the Clark Fork River, providing approximately 17% of the mean annual flow in this reach of the Clark Fork River. USGS collected streamflow data for Flint Creek near Drummond from August 1990 through April 2003 and August 2003 through February 2005. The gauge was discontinued in 2005 when the Environmental Protection Agency, the former cooperator in the USGS Cooperative Water Program, no longer funded data collection at this location.

This project will provide for the reinstatement of the USGS Gauge Station 12331500, Flint Creek near Drummond and provide for a continuation of the hydrologic record by streamflow monitoring and data collection through the 2007 water year (October 2006 – September 2007). DNRC is requesting Legislative funding through the Executive Planning Process to continue the support of the gauge through the Cooperative Water Program beyond the 2007 water year. Without this project to fund streamflow data collection in the 2007 water year the gap in the hydrologic record continues to widen. While the flow of Flint Creek near Drummond could be estimated using comparisons to current and past streamflow data in similar streams in the basin, the reliability of these estimates decreases as the number of years without data increases. Additionally hydrologic data is not only needed to understand long-term trends but also to evaluate unique streamflow events that may occur in water year 2007 that could not be fully investigated without actual streamflow data. For example if a significant drop in flows in the Clark Fork River below Drummond occurred that was not observed in the Clark Fork farther upstream, the influence of Flint Creek on this event could not be fully understood without data from the gauge near the mouth of Flint Creek. While this situation is hypothetical, the importance of missing streamflow data is often not fully realized until after it is needed.

Project Goals and Objectives

The goal of this project is to continue to build the hydrologic record for Flint Creek and provide for continued real-time monitoring of streamflow in Flint Creek near Drummond. The continued streamflow data collections would, in turn, facilitate the development and monitoring of restoration projects within the UCFRB that directly improve aquatic and terrestrial resources and associated public recreation. The objective of reinstating and continuing operations of the Flint Creek near Drummond USGS Stream Gauge is the means of achieving the aforementioned goal.

Flint Creek produces a mean annual flow of 118 ft³/s (1991-2004 period of record, USGS), while the Clark Fork near Drummond has a mean annual flow of 684 ft³/s (1993-2004 period of record, USGS). Providing about 17 percent of the mean annual flow, Flint Creek is a significant tributary to the Clark Fork. While water quality data indicates Flint Creek contributes metals such as arsenic, copper and zinc to the Clark Fork, the concentrations of copper and zinc are less than those found in the Clark Fork. The tables (USGS) on the following page contain water quality data for the 2004 water year and exemplify the relationship between water quality in Flint Creek and the Clark Fork. Flint Creek also contributes a significant amount of lead to the Clark Fork.

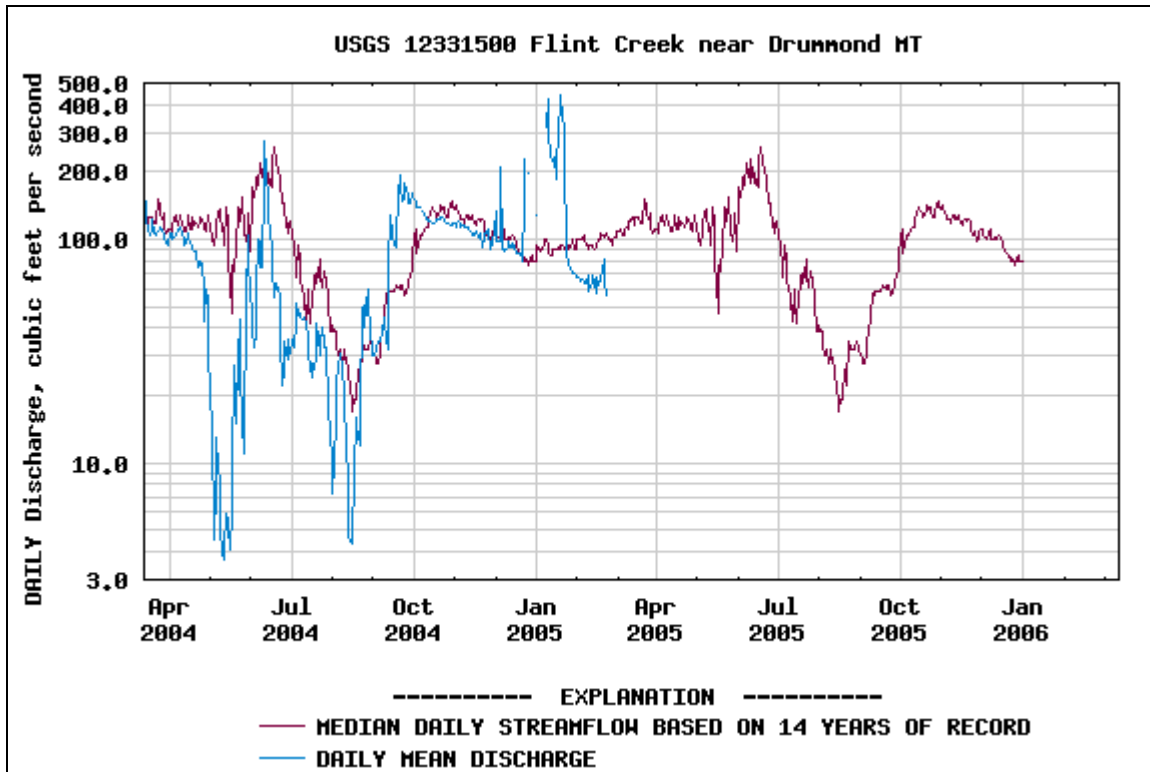
Flint Creek near Drummond Water Quality Data

382		PEND OREILLE RIVER BASIN												
		12331500 FLINT CREEK NEAR DRUMMOND, MT—Continued												
		WATER QUALITY RECORDS												
		PERIOD OF RECORD.--Water years 1972-73, 1985 to August 2002, August 2003 to August 2004, discontinued.												
		REMARKS.--Flow affected by diversions for irrigation upstream from station.												
		WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004												
Date	Time	Instantaneous discharge, cfs (00061)	pH, water, unfltrd field, std units (00400)	Specif. conductance, water, unfltrd uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO ₃ (00900)	Calcium, water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Arsenic, water, fltrd, ug/L (01000)	Arsenic, water, unfltrd ug/L (01002)	Cadmium, water, fltrd, ug/L (01025)	Cadmium, water, unfltrd ug/L (01027)	
NOV 18...	0910	111	8.4	345	7.5	2.5	160	44.1	13.2	6.2	7	<.04	E.03	
APR 21...	0735	88	8.4	305	-2.0	3.0	140	38.6	11.4	10.9	10	<.04	.04	
MAY 18...	0810	8.3	8.3	398	12.0	9.0	200	54.9	14.4	9.7	11	<.04	E.02	
JUN 02...	1235	39	8.5	403	22.0	13.5	190	53.1	12.8	9.0	11	<.04	E.02	
JUN 14...	1125	134	8.4	288	15.5	11.0	140	38.3	10.4	8.1	13	<.04	.05	
AUG 23...	0955	57	8.2	501	12.0	12.5	240	64.6	18.7	12.3	15	<.04	.07	
Date		Copper, water, fltrd, ug/L (01040)	Copper, water, unfltrd recover-able, ug/L (01042)	Iron, water, fltrd, ug/L (01046)	Iron, water, unfltrd recover-able, ug/L (01045)	Lead, water, fltrd, ug/L (01049)	Lead, water, unfltrd recover-able, ug/L (01051)	Manganese, water, fltrd, ug/L (01056)	Manganese, water, unfltrd recover-able, ug/L (01055)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, unfltrd recover-able, ug/L (01092)	Suspended sediment, percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
NOV 18...	.7	1.9	E6	180	E.05	2.56	22.2	64	1.3	8	93	8	2.4	
APR 21...	1.2	4.7	9	250	.09	3.17	33.0	77	1.8	10	88	12	2.9	
MAY 18...	1.1	1.4	15	90	.09	.80	78.6	97	1.6	4	90	4	.09	
JUN 02...	1.3	1.8	14	130	.11	1.60	55.8	85	1.2	5	87	7	.74	
JUN 14...	1.2	3.0	17	270	.21	5.28	30.0	101	1.7	14	84	15	5.4	
AUG 23...	1.7	2.8	42	480	.12	4.27	75.0	269	1.7	14	89	26	4.0	
E--Estimated.														

Clark Fork River near Drummond Water Quality Data

PEND OREILLE RIVER BASIN														385
12331800 CLARK FORK NEAR DRUMMOND, MT—Continued														
WATER-QUALITY RECORDS														
PERIOD OF RECORD --March 1993 to current year.														
WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004														
Date	Time	Instantaneous discharge, cfs (00061)	pH, water, unfltd std units (00400)	Specific conductance, water, unfltd uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium, water, fltd, mg/L (00915)	Magnesium, water, fltd, mg/L (00925)	Arsenic, water, fltd, ug/L (01000)	Arsenic, water, unfltd ug/L (01002)	Cadmium, water, fltd, ug/L (01025)	Cadmium, water, unfltd ug/L (01027)	
NOV 18...	1015	501	8.4	490	5.5	4.5	230	64.8	16.1	8.4	8	E.03	.10	
MAR 17...	1250	613	8.4	471	12.5	7.5	220	64.2	14.9	9.0	9	E.04	.14	
APR 21...	0840	505	8.3	435	4.5	7.0	200	57.8	13.8	12.0	10	E.03	.12	
MAY 18...	0900	308	8.4	484	10.0	12.5	240	68.8	15.8	9.2	10	E.02	.04	
JUN 02...	1325	608	8.5	436	24.0	15.5	200	58.6	13.3	10.4	12	E.02	.08	
JUN 13...	1645	855	8.4	370	16.0	16.0	170	49.1	11.3	10.6	14	<.04	.14	
JUL 20...	1250	298	8.4	525	27.5	20.5	250	70.4	17.1	12.8	12	E.02	.06	
AUG 23...	1045	235	8.2	578	13.0	15.5	280	81.1	19.5	12.1	12	E.03	.07	
Date		Copper, water, fltd, ug/L (01040)	Copper, water, unfltd recoverable, ug/L (01042)	Iron, water, fltd, ug/L (01046)	Iron, water, unfltd recoverable, ug/L (01045)	Lead, water, fltd, ug/L (01049)	Lead, water, unfltd recoverable, ug/L (01051)	Manganese, water, fltd, ug/L (01056)	Manganese, water, unfltd recoverable, ug/L (01055)	Zinc, water, fltd, ug/L (01090)	Zinc, water, unfltd recoverable, ug/L (01092)	Suspended sediment, percent <.063mm (70331)	Suspended sediment concentration, mg/L (80154)	Suspended sediment discharge, tons/d (80155)
NOV 18...	2.6	11.1	<6	220	<.08	1.63	12.9	63	4.1	17	86	11	15	
MAR 17...	4.5	19.7	7	460	.09	3.24	20.8	88	4.2	25	82	26	43	
APR 21...	4.1	13.7	E5	310	E.04	2.04	14.2	62	9.1	18	89	14	19	
MAY 18...	4.4	5.8	E6	40	E.05	.29	11.1	16	3.2	5	81	2	1.7	
JUN 02...	4.7	10.4	E6	180	E.06	1.19	15.8	49	2.6	12	90	9	15	
JUN 13...	4.2	19.0	10	450	.10	3.45	15.6	97	2.9	26	89	23	53	
JUL 20...	3.6	6.7	E4	100	E.05	.80	11.0	41	1.7	7	64	8	6.4	
AUG 23...	3.8	7.7	E3	130	E.04	.98	6.8	45	2.9	11	86	7	4.4	
E--Estimated.														

Clearly Flint Creek provides some level of dilution to the copper and zinc concentrations in the Clark Fork while contributing to the lead load in the Clark Fork. However, the reliability of these flows is less certain. The following chart shows the measured daily flows dating back to March 2004 compared to the mean daily flow for the Flint Creek near Drummond gaging station.



Fluctuations from the mean vary due both to the irrigation withdrawals and the highly regulated nature due to reservoir releases of Flint Creek. It is not clear if the diluting nature of Flint Creek can be relied upon, especially during the late summer and early fall. Further streamflow data collection is needed to understand the influence of Flint Creek flow in the Clark Fork and hence on metal concentrations in the Clark Fork below confluence with Flint Creek.

While a USGS gauge is in place on Flint and Boulder Creeks at Maxville, their sum monitoring the flow into the lower Flint Creek basin, these stations are approximately 15 miles upstream of the gauge near Drummond. A comparison of average monthly flow indicates a marked difference in flows entering the lower Flint Creek basin as compared to those in Flint Creek near the confluence with the Clark Fork. The following table shows the difference measured in water year 2004.

Comparison of Mean Monthly 2004 Flows for Flint Creek gaging stations (USGS data).

Station	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Flint Creek @ Maxville	55.0	50.2	40.4	36.6	44.0	70.9	58.5	55.5	97.8	80.0	81.3	73.6
Boulder Cr. @ Maxville	13.9	16.7	14.7	14.9	15.6	17.3	24.7	78.5	78.5	23.1	14.7	23.7
Sum	68.9	66.9	55.1	51.5	59.6	88.2	83.2	134.0	176.3	103.1	96.0	97.3
Flint Cr. nr Drummond	102.0	105.0	90.0	88.8	102.0	120.0	88.9	20.5	76.7	34.0	2.4	101.0
Percent Difference	48.0%	57.0%	63.3%	72.4%	71.1%	36.1%	6.9%	-84.7%	-56.5%	-67.0%	-97.5%	3.8%

The flow entering the lower Flint Creek basin compared to that leaving varies substantially. For 2004 the variance was as much as 72% more flow near Drummond in January to as little as 98% less flow in August. This substantial variance is likely due to tributary inflows including significant tributaries such as Lower Willow Creek and due to major irrigation withdrawals downstream of the Maxville stations. Clearly the Maxville stations do not accurately represent the flow present in Flint Creek near Drummond.

Flint Creek provides habitat for resident sport fish such as Rainbow and Brown Trout. It also provides spawning habitat for these species and to a limited extent for Bull Trout (MFISH). Montana Fish, Wildlife and Parks classifies Flint Creek as chronically dewatered (MFISH). Flint Creek potentially provides opportunities for restoration projects to improve overall aquatic and terrestrial habitat in the UCFRB. Projects targeted at improving flow and habitat for both resident and spawning fish likely will be explored in the future. Continued streamflow data collection is needed to build on the hydrologic record necessary to evaluate the feasibility of such projects.

Project Implementation Plan

Upon approval of the requested grant, DNRC would contract with the USGS to reinstall and operate the Flint Creek near Drummond gauge for the 2007 water year. Data collection would begin in October 2006 with the gauge installed some time prior to that date. Real time streamflow data would be available from the USGS on their website with archived data provided on the website and in the *Water Resource Data - Montana* yearly reports. Beyond the 2007 water year, DNRC intends to continue funding the maintenance and operation of the gauge with state general fund through the USGS Cooperative Water Program.

The stream gauge would be located at the same location as the previous gauge, at the Mullan Road Bridge over Flint Creek. USGS has an agreement with Granite County to locate the gauge in the county road right-of-way.(personal communication with Wayne Berkas of the USGS) As services for the project would be contracted with USGS, they would be responsible to obtain any necessary permits to re-install the gauging station.

Project Time Schedule.

June 2006 – DNRC informed of grant approval
 July 2006 – NRDP grant agreement executed
 July 2006 – DNRC signs contract with USGS
 August – September 2006 – USGS installs gauging equipment
 October 2006 – USGS begins data collection and dissemination

Spring 2007 – DNRC secures permanent funding from Legislature for 2008 Water Year
Methods and Technical Feasibility of the Proposed Project

The flow in Flint Creek would be monitored by measuring the stage (water elevation) using redundant continuous recording devices. These recording devices are housed in a small building along the stream bank that includes a stilling well connected to the stream via pipes. The USGS would develop and maintain a stage discharge relationship for the gauge location. USGS normally measures the flow of the river monthly to check the stage-discharge relationship and assure accuracy. The data is relayed via satellite to USGS for immediate dissemination on their web page. Additionally, the streamflow data is analyzed and revised annually and reported in *Water Resource Data - Montana* yearly reports.

This method of streamflow data collection is highly regarded and tested as it used nationwide by USGS. This project is intended to minimize currently widening data gaps with regard to the hydrology of Flint Creek. The uncertainties associated with the present data gaps are lessened by the timely reinstallation of the Flint Creek near Drummond Gauge.

USGS has committed to 50% in-kind funding of the Flint Creek near Drummond Gauge for the 2007 Water Year. (personal communication with Wayne Berkas of the USGS) Delays in the implementation of the project would be reflected in a lower contract value payable to USGS.

Monitoring Plan

This is a monitoring project. The only additional monitoring necessary might be to ensure that the USGS is collecting the streamflow data. However, the ultimate goal of facilitating the development of other projects targeted at improving aquatic and terrestrial resources and associated public recreation within the UCFRB cannot be immediately measured. Ultimately the long-term value of the stream gauge will be re-evaluated annually by DNRC in consultation with other agency such as Montana Fish, Wildlife and Parks. This monitoring effort coordinates well with the other streamflow data that is currently being gathered in the UCFRB and fills an existing data gap.

Qualifications of the Project Team

The project would be completed through contract between the DNRC and USGS. USGS previously operated the Flint Creek near Drummond gauge and has extensive experience in this field, currently operating about 200 stream gauges across Montana.

Supporting Technical Documentation

References Cited

USGS (United States Geological Survey). 2004. *Water Resources Data - Montana - Water Year 2004* 2: 380-385

MFISH (Montana Fishery Information System). 2006. Montana Department of Fish, Wildlife and Parks.

Criteria Statements – Short Form

Applicant Name:

State of Montana, Department of Natural Resources and Conservation

Project Title: Flint Creek near Drummond Stream Gauge

Relationship of Expected Costs to Expected Benefits

The direct cost of the project is \$14,000 with a 50% inkind match by the USGS. DNRC incurs a minor indirect cost in administering the contract with USGS. The benefits of this project cannot be quantified in dollars. DNRC believes that the continuation of the gaging station with as little interruption as possible is necessary to build a reliable hydrologic record for lower Flint Creek, a major tributary within the UCFRB. DNRC's commitment to this premise is evidenced by the Legislative request for funding beyond water year 2007. This project would indirectly benefit aquatic and terrestrial resources and associated public recreation both in the Flint Creek and the Clark Fork River. Only time would tell the ultimate benefit as other projects are developed that rely on the data collected at the gaging station. Reliable streamflow data is key to nearly every flow improvement restoration project.

Tributaries to the Clark Fork River such as Flint Creek are important to spawning and recruitment. The value of Flint Creek in recruitment of fish to the Clark Fork River is limited by dewatering. However, this situation provides the opportunity for restoration projects on Flint Creek that might reduce the dewatering problems benefiting both Flint Creek and the Clark Fork River. Many agencies and organizations including local watershed groups and Montana Fish, Wildlife and Parks regularly use USGS streamflow data to evaluate the feasibility of restoration and other habitat related projects and also to monitor the success of such projects. Streamflow data is essential in both evaluating potential projects as well as in associated permitting processes such as permitting new water rights or changes in water use. A more complete understanding of the hydrology of Flint Creek would be important in evaluating the feasibility of future restoration projects and facilitate their implementation.

Through future restoration projects the fishery within Flint Creek and the Clark Fork River would be expected to improve. As the fishery value improves, the need to protect it also increases. The long-term hydrologic data provided by USGS stations is critical to FWP in the evaluation of population trends and other issues such as whirling disease that is already present in the UCFRB. Montana Fish, Wildlife and Parks also classifies the Clark Fork River in the Drummond area as chronically dewatered. Understanding and monitoring the influence of Flint Creek on the Clark Fork enables assessment of future projects to address the dewatering issue in the Clark Fork.

The streamflow data collection for Flint Creek near Drummond would provide for other needs beyond restoration in the UCFRB. For example, as population growth continues in western Montana, hydrologic data is essential in making such planning decisions related to floodplains and stream setbacks. While not necessarily directly related to the

improvement of aquatic and terrestrial resources in the UCFRB, these uses of streamflow data are a clear public benefit.

The Public would have direct and immediate access to the streamflow data collected by the USGS via the USGS website.

Cost Effectiveness

The no-action alternative was considered but fails to address the problem of the data gap created by the discontinuation of the Flint Creek near Drummond stream gauge. A lack of long-term, reliable hydrologic record cannot be reconstructed using other theoretical methodologies to the same level of confidence as obtained by gathering actual data. This is particularly true of a highly regulated stream such as Flint Creek. The table at the top of page 12 demonstrates the level of variability. Because of this variability it is difficult to estimate flow data by comparing to similar gauged streams. Flint Creek does not behave as other similar magnitude streams such as Rock Creek, which flows into the Clark Fork near Clinton. The lack of data for water year 2007 would increase the already existing data gap by 50% further reducing the confidence in statistically derived data that might be used to fill in missing years.

In the past water managers in the Flint Creek basin have used the data from the Flint Creek near Drummond gauge to regulate flows in lower Flint Creek. Since the discontinuation of this stream gauge, regulating flows in Flint Creek has been more difficult and could be contributing to stream dewatering, which impacts fisheries both in Flint Creek and ultimately the Clark Fork River. For the 2007 water year alone, the reinstallation of the gauge provides direct benefits to water managers and indirectly benefits aquatic Flint Creek and the Clark Fork River.

Private firms could perform similar data collection. However, these firms are not able to match the level of data integrity and data archiving as well as the reliable means of real-time data dissemination available through the USGS.

Another alternative considered would be the relocation of existing stream gauges in the Flint Creek Basin. Flint Creek near Southern Cross with FWP as the cooperator is actually funded through an agreement with the Georgetown Lake Homeowners and Granite County, negating the possibility that this station could be moved. The Flint and Boulder Creek stations at Maxville are required to discern between contract water from the Flint Creek Water Users' Association and decreed water and therefore cannot be moved. Because the other gaging stations are necessary, it would not be feasible to relocate one of the existing gauges in the Flint Creek Basin.

Impacts to the Environment and Human Health and Safety

No significant impacts to the environment or human health and safety are expected. Some small environmental impacts may be associated with the installation of the stream gauging equipment. These impacts would be consistent with those routinely encountered and mitigated by USGS. USGS would be responsible to obtain all necessary permits and take required mitigation measures.

Public Support

Montana Fish Wildlife and Parks supports this project and assisted in preparation of the application. A letter of support is included as Appendix A. While no individuals or public groups have been contacted with regard to this project, real-time streamflow data is generally very popular and widely used by the public. This is evidenced by a site visits to USGS Montana Water Data website reportedly in excess of 20,000 per year.

Public Access

This project is for monitoring only and does not impact public recreational access.

Normal Government Function

While not one of the short form criterion, the Natural Resource Damage Program staff recommended that the question of whether maintaining stream gages is a normal government function be addressed. The USGS stream gauges in the Upper Clark Fork River Basin, not including the Blackfoot River Basin, are funded by both State and Federal agencies through the USGS Cooperative Water Program. These agencies include the Environmental Protection Agency (EPA-CF), Montana Bureau of Mines and Geology (MBMG), Montana Fish, Wildlife and Parks (MFWP) Montana Department of Natural Resources and Conservation (MDNRC). Currently these various agencies cooperatively fund 23 surface water stations within the UCFRB above the Blackfoot River. While not shown on the map on page 8 an additional 4 stations in the Blackfoot River Basin are funded by these agencies with the additional help of a local conservation district while a fifth station in the Blackfoot is funded through the USGS National Streamflow Information Program. The following table shows the funding sources for the USGS stations corresponding to the map on page 8:

USGS Cooperators in the UCFRB

12323240	Blacktail Creek at Butte	Annual	MBMG
12323248	Silver Bow Creek above Wastewater Plant Outflow, at Butte	Annual	Not Funded
12323250	Silver Bow Creek below Blacktail Creek, at Butte	Annual	MBMG
12323600	Silver Bow Creek at Opportunity	Annual	EPA-CF
12323670	Mill Creek near Anaconda	Annual	EPA-CF
12323700	Mill Creek at Opportunity	Annual	EPA-CF
12323710	Willow Creek near Anaconda	Annual	EPA-CF
12323720	Willow Creek at Opportunity	Annual	EPA-CF
12323750	Silver Bow Creek at Warm Springs	Annual	EPA-CF
12323760	Warm Springs Creek near Anaconda	Annual	EPA-CF
12323770	Warm Springs Creek at Warm Springs	Annual	MFWP
12323800	Clark Fork near Galen	Annual	EPA-CF
12323840	Lost Creek near Anaconda	Annual	EPA-CF
12323850	Lost Creek near Galen	Annual	EPA-CF
12324200	Clark Fork at Deer Lodge	Annual	MFWP
12324590	Little Blackfoot River near Garrison	Annual	MDNRC
12324680	Clark Fork at Goldcreek	Annual	MFWP
12325500	Flint Creek near Southern Cross	Seasonal	MFWP

12329500	Flint Creek at Maxville	Annual	MDNRC
12330000	Boulder Creek at Maxville	Annual	MDNRC
12331500	Flint Creek near Drummond	Annual	Not Funded
12331800	Clark Fork near Drummond	Annual	EPA-CF
12332000	Middle Fork Rock Creek near Philipsburg	Annual	MDNRC
12334510	Rock Creek near Clinton	Annual	MDNRC
12334550	Clark Fork at Turah Bridge, near Bonner	Annual	EPA-CF

These various gauges serve multiple purposes. For example those stations funded by EPA generally relate to water quality (including flow) while those funded by DNRC may be targeted at the operation of State Water Projects (e.g. Middle Fork Rock Creek near Philipsburg) or at developing a long-term hydrologic record (e.g. Rock Creek near Clinton). Those funded by FWP also serve multiple purposes such as addressing water elevations at Georgetown Lake through the monitoring of Flint Creek near Southern Cross where the Georgetown Lake Homeowners and Granite County provide the funds for FWP to participate in the Cooperative Water Program. Other stations funded by FWP are for fisheries research and potential remediation projects. The varied mandates of these agencies do not require that any specific stream gauge be funded. No single agency or organization bears the responsibility to fund all these USGS gauges. Any governmental agency can choose to participate in the Cooperative Water Program, and they do so as funding is available and as needs for flow data arise

Proposal Budget

Applicant Name: State of Montana, Department of Natural Resources and Conservation

Project Title: Flint Creek near Drummond Stream Gauge

BUDGET DETAIL FORM									
EXPENSE CATEGORY		UCFRB RESTORATION GRANT FUND	APPLICANT CONTRIBUTION			OUTSIDE SOURCES			TOTAL
			Cash	In-Kind	Subtotal	Cash	In-Kind	Subtotal	
1	SALARIES AND WAGES (List all worker salaries)								
	SALARIES AND WAGES SUBTOTAL								
2	FRINGE BENEFITS								
	FRINGE BENEFITS SUBTOTAL								
3	CONTRACTED SERVICES (LIST BY TYPE)								
	USGS Cooperative Water Program	\$ 7,000.00				\$ 7,000.00			
	CONTRACTED SERVICES SUBTOTAL	\$ 7,000.00				\$ 7,000.00	\$ 7,000.00	\$ 14,000.00	
4	SUPPLIES AND MATERIALS								
	SUPPLIES AND MATERIALS SUBTOTAL								
5	COMMUNICATIONS								
	COMMUNICATIONS SUBTOTAL								
6	TRAVEL								
	TRAVEL SUBTOTAL								
7	RENT AND UTILITIES								

	RENT AND UTILITIES SUBTOTAL							
8	EQUIPMENT							
	EQUIPMENT SUBTOTAL							
9	MISCELLANEOUS							
	MISCELLANEOUS SUBTOTAL							
	ALL CATEGORIES SUBTOTAL	\$ 7,000.00				\$ 7,000.00	\$ 7,000.00	\$ 14,000.00

PROJECT BUDGET SUMMARY FORM								
EXPENSE CATEGORY	UCFRB RESTORATION FUND	APPLICANT CONTRIBUTION			OUTSIDE SOURCES			TOTAL
		Cash	In-Kind	Subtotal	Cash	In-Kind	Subtotal	
1 SALARIES AND WAGES								
2 FRINGE BENEFITS								
3 CONTRACTED SERVICES	\$7,000.00					\$7,000.00	\$7,000.00	\$14,000.00
4 SUPPLIES AND MATERIALS								
5 COMMUNICATIONS								
6 TRAVEL								
7 RENT AND UTILITIES								
8 EQUIPMENT								
9 MISCELLANEOUS								
TOTAL	\$7,000.00					\$7,000.00	\$7,000.00	\$14,000.00

Appendix A



**Montana Fish,
Wildlife & Parks**

April 4, 2006

Natural Resource Damage Program
1301 East Lockey
PO Box 201425
Helena MT 59620-1425

RE: Letter of Support for DNRC's Flint Creek USGS Gauge Grant Application

Dear Sir or Madam:

Montana Fish, Wildlife & Parks (FWP) fully supports Montana Department of Natural Resources and Conservation's grant application to restore the Flint Creek near Drummond USGS Stream Gauge. A hydrologic record with minimal interruption provides FWP with important data necessary to analyze fisheries as well as evaluate projects and proposals, both internal and external to the agency that may impact the fishery in Flint Creek and the Clark Fork River.

Sincerely,

/s/ Andy Brummond
Andy Brummond
Instream Flow Specialist